

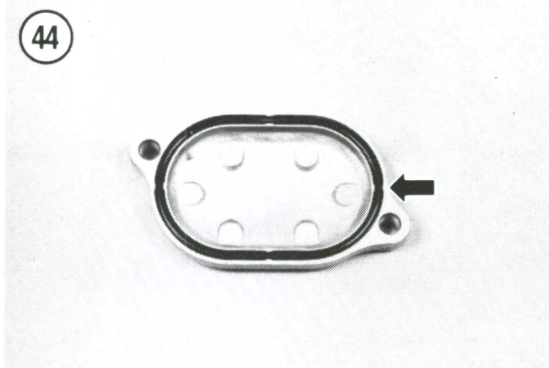
20. Refill the engine with the recommended type and quantity of engine oil as described in Chapter Three.

CYLINDER HEAD

Removal/Installation

CAUTION

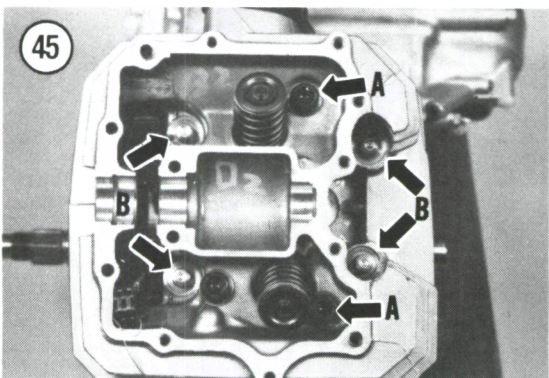
To prevent any warpage and damage, remove the cylinder head only when the engine is at room temperature.



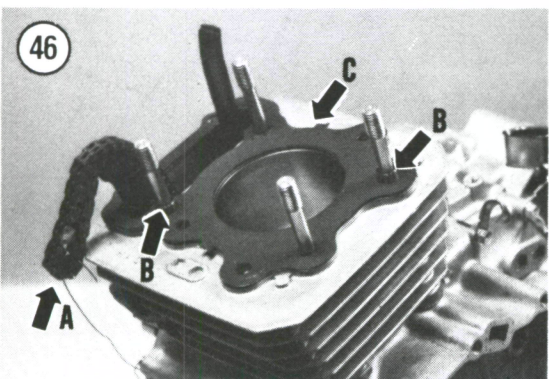
1. Remove the cylinder head cover and camshaft as described in this chapter.
2. Remove the exhaust system as described in Chapter Seven.
3. Loosen in a criss cross pattern in 2-3 stages, the Allen bolts and copper washers (A, **Figure 45**) and the cap nuts and steel washers (B, **Figure 45**).
4. Remove the bolts and nuts loosened in Step 2.
5. Loosen the cylinder head by tapping around the perimeter with a rubber or soft-faced mallet. If necessary, *gently* pry the head loose with a broad-tipped screwdriver.

CAUTION

Remember the cooling fins are fragile and may be damaged if tapped or pried on too hard. Never use a metal hammer.



6. Untie the wire securing the camshaft chain and retie the wire to the cylinder head.
7. Lift the cylinder head straight up and off the crankcase studs. Guide the cam chain through the opening in the cylinder head and retie the wire to the exterior of the engine (A, **Figure 46**). This will prevent the drive chain from falling down into the crankcase.
8. Remove the cylinder head gasket and discard it. Don't lose the locating dowels.
9. Place a clean shop cloth into the cam chain opening in the cylinder to prevent the entry of foreign matter.
10. Install by reversing these removal steps while noting the following.
11. If removed, install the locating dowels (B, **Figure 46**) in the cylinder head.
12. Install a new head gasket (C, **Figure 46**).
13. Install the cylinder head onto the crankcase studs. With your fingers, carefully insert the cam chain into the cam chain cavity on the side of the



cylinder head while pushing the cylinder head down into position.

14. Tie the wire attached to the cam chain to the exterior of the engine.

15. Install the Allen bolts and copper washers (A, **Figure 45**) and the cap nuts and steel washers (B, **Figure 45**).

16. Tighten the Allen bolts and cap nuts in the torque pattern shown in **Figure 47**. Tighten to the torque specifications listed in **Table 2**.

17. Install the exhaust system in to the cylinder head as described in Chapter Seven.

18. Install the cylinder head cover and camshaft as described in this chapter.

19. Adjust the valves as described in Chapter Three.

Disassembly/Inspection/Assembly

Because the cylinder head and cylinder head cover are machined as a set during manufacture, they must be replaced as a set if either is damaged or defective.

1. Remove all traces of gasket material from the cylinder head mating surfaces.

2. *Without removing the valves*, remove all carbon deposits from the combustion chamber (**Figure 48**) and valve ports with a wire brush. A blunt screwdriver or chisel may be used if care is taken not to damage the head, valves and spark plug threads.

3. After the carbon is removed from the combustion chamber and the valve intake and exhaust ports, clean the entire head in cleaning solvent. Blow dry with compressed air.

4. Clean away all carbon from the piston crown. Do not remove the carbon ridge at the top of the cylinder bore.

5. Check for cracks in the combustion chamber and exhaust ports. A cracked head must be replaced.

6. After the head has been thoroughly cleaned, place a straightedge across the cylinder head/cylinder gasket surface (**Figure 49**) at several points. Measure the warp by inserting a flat feeler gauge between the straightedge and the cylinder head at each location. There should be no warpage; if a small amount is present, it can be resurfaced by a dealer or qualified machine shop. Replace the cylinder head and cylinder head cover as a set if the gasket surface is warped to or beyond the limit listed in **Table 1**.

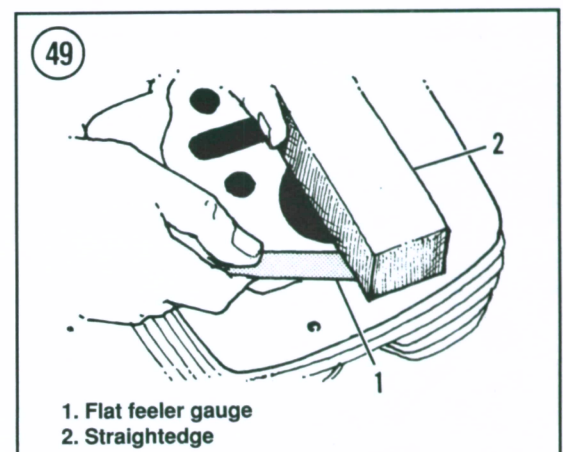
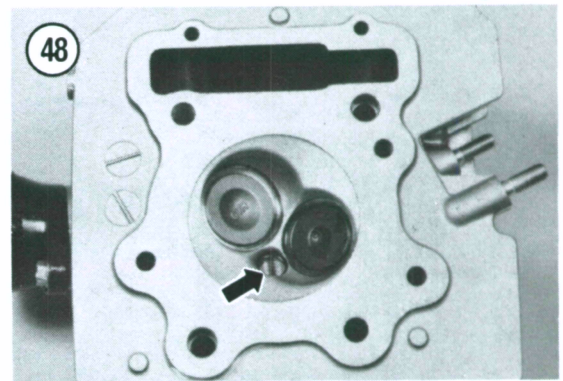
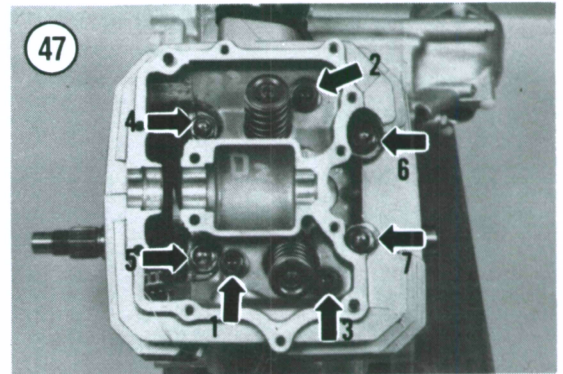
7. Check the cylinder head cover mating surface using the procedure in Step 6. There should be no warpage.

8. Check the valves and valve guides as described in this chapter.

VALVES AND VALVE COMPONENTS

Removal

Refer to **Figure 50** for this procedure.



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